

**EÖTVÖS LORÁND UNIVERSITY FACULTY OF EDUCATION AND
PSYCHOLOGY**

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**HARM REDUCTION INTERVENTIONS TARGETING
RECREATIONAL DRUG USE**

- PhD thesis -

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1 INTRODUCTION

The first section of this work aims at providing an overview of recreational drug use in nightlife settings with special focus on a relatively new related phenomenon, namely the use of novel psychoactive substances (NPS), the risks and possible harms related to recreational substance use and interventions planned and implemented in order to minimize these harms.

Recreational drug use dates back to very early times of human civilizations, however the scope of this work is limited to give an overview of the most important milestones regarding recreational drug use of the past few decades. The objective of this historical overview is to present and identify trends and to draw conclusions which might contribute to a deeper understanding of the dynamic nature of the phenomenon and to foreshadow some hints that might be useful when making predictions for the future and planning future interventions.

After the overview of most relevant definitions, available data and theoretical considerations, the dissertation presents three individual studies from the period of 2008-2014, all of which address or reflect a specific phase of a possible intervention program targeting recreational drug use. All three studies are results of international cooperation, with great institutions and amazing researchers from all over Europe, in which I had the chance to participate as a researcher either representing the National Institute for Drug Prevention (Nemzeti Drogmegelőzési Intézet) where I had worked from 2008 until 2011 or the Eötvös Loránd University from 2011 until today.

The order of the studies is defined by their specific roles in the hypothetic process of developing an intervention, therefore the three studies below can be regarded as an analogy, an example of a potential intervention, but made up of mosaics of three different projects.

The first study is a large sample online survey suitable for revealing the actual drug situation in the participant countries and to identify magnitude and quality of the drug-related problems. The second study focuses specifically on the characteristics and needs of young people who are likely to get in touch with recreational drugs and the ever-growing world of new psychoactive substances. Assessment of the needs of the target group is an inevitable step in intervention planning. The third study introduces a project where the process of program planning is documented to details and thus valuable

experiences of service providers are shared regarding this phase via the evaluation of a handbook. This last study presents phases of developing later implemented interventions from their theoretical basis to the practical developments planned for the future, while also letting insight to the often neglected but fruitful area of evaluation related activities.

2 STUDIES

Study 1

Global Drug Survey – Problem assessment

Global Drug Survey (GDS) is a multinational annual online anonym survey on psychoactive drugs and their use responded by a huge number of recreational drug users each year. The survey provides a large sample exploration study on the recreational drug use situation in Hungary. It investigates questions like what are the most popular drugs, possible health consequences of specific substances or what are the most widely used harm-reduction strategies.

GDS is an independent research organization based in London, founded by dr. Adam Winstock with a constantly growing number of supporting researchers from all over the world. The Hungarian team joined the research in 2013, thus we have Hungarian data on three consecutive years and this way GDS provides information on trends and changes in the patterns of use throughout these years. For the sake of reasonable length limits of this dissertation, however, only the data of the GDS 2014 will be analyzed and presented.

With the purposive sampling method applied, a total of 78 820 responses were received from 18 countries all over the world, of which 4.1% (3239) were Hungarian.

The data on 3176 Hungarian participants have been analyzed in the GDS 2014 survey

The purpose of this study was to get a snapshot of the situation concerning recreational drug use in Hungary in order to reveal acute problems, changes that might need further attention from professionals and possible points of intervention. Prevalence of the use of certain drugs among clubbers and potential harms resulting from their use are fundamental information in order to be able to identify problems in the scene. Acquisition of this information is the main aim of the GDS.

Study 2

ReDNet Project – Needs Assessment

The second study is embedded in the Recreational Drugs European Network (ReDNet) Project. The project was the continuation of the Psychonaut Project and made use of the Psychonaut Web Mapping Project database (Psychonaut Web Mapping Project, 2009), which contains novel psychoactive compounds usually not mentioned in the scientific literature and thus unknown to most clinicians.

During 2012, 57 novel psychoactive substances were officially reported for the first time in the European Union with the help of the EU early warning system (EWS) indicating the appearance of more than one new psychoactive drug on the market every week (EMCDDA, 2012). A total of 101 new substances were reported to the EU Early Warning System (EWS) in 2014 (up from 81 in 2013), continuing an upward trend in substances notified in a single year. This brings the total number of substances being monitored by the agency to over 450, with more than half of that figure being identified in the last three years alone (EMCDDA, 2015). NPS are usually sold online through an amount of legal, semi-illegal or unregulated websites and are often almost unknown to health professionals who may not be technically conversant, given the typical absence of up-to-date scientific literature and reliable sources of information (CASA, 2008; Forman, Marlowe, & McLellan, 2006; Littlejohn, Baldacchino, Schifano, & Deluca, 2005).

The ReDNet Project executed a multinational survey aimed to assess needs and help develop an integrated ICT prevention approach targeted at vulnerable individuals and focused on novel synthetic and herbal compounds and combinations. Particular care was taken in keeping the health professionals working directly with young people showing problematic behaviors regularly updated in terms of novel compounds and their combinations.

The ReDNet Project was supported by the 2009 Public Health Programme of the European Commission's Executive Agency for Health and Consumers and was executed by the following research centers across Europe: School of Pharmacy, University of Hertfordshire, Hatfield, UK (coordinator); National Addiction Centre, Institute of Psychiatry, King's College London, London, UK; National Institute for Drug Prevention (NCsSzi – NDI), later the Eötvös Loránd University, Hungary; Institute of Psychiatry and Neurology, Warsaw, Poland; Bergen Clinics Foundation, Bergen, Norway, De Sleutel, Gent, Belgium; Servizio Salute Regione Marche, Ancona, Italy; Consorci Mar Parc de Salut de Barcelona, Spain; Rhine State Hospital, University of Duisburg-Essen, Essen, Germany; DrugScope, London, UK.

The ReDNet Project is a multinational and multifocal research with the main objective of gathering, developing and providing reliable and relevant information on the effects of new psychoactive substances (legal highs or designer drugs), their short and long-term effects, health consequences and treatment options both for professionals and potential substance user young people. The other main objective of the project was to explore the

possible roles of innovative information communication technologies (ICT) in reaching the target groups and delivering relevant interventions.

Methods: (a) monitoring the web and the available literature concerning information on novel psychoactive substances; (b) questionnaire survey with potential users and professionals working with them in order to assess use patterns of NPS and to assess needs related to reducing risks of these substances; (c) development of wiki info pages and (d) dissemination of the information via ICT tools such as interactive websites, SMS alert, social networking (Facebook, Twitter), Multimedia (You Tube), Smartphone applications (iPhone), and virtual learning environments (Second Life) and the evaluation of these interventions with the help of focus groups.

This second study focuses on the needs assessment of the two target groups; young people who are potential users of NPS and professionals working with young people exposed to the harms of NPS. Questions of the survey addressed patterns of NPS use, explored the motivations for preference of NPS over the traditional illicit drugs and the possible roles of traditional and innovative ways of disseminating prevention and harm reduction messages. The questionnaire targeting professionals helped us to get a more profound understanding of the NPS-related problems these personnel have to face during their work and results turned our attention towards blind spots in the drug education of youth and drug treatment as well as possible tailor-made solutions with the help of ICT tools.

Study3

Healthy Nightlife Toolbox Project – Possible responses, new approaches to problems concerning recreational drug use

The general aim of the Healthy Nightlife Toolbox (HNT) international project is to reduce harm from alcohol and drug use among young people in recreational settings. Five organizations of five member states of the European Union (Belgium, Holland, Hungary, Spain and the United Kingdom) participated in the project supported by the EU. The Healthy Nightlife Toolbox was designed for local, regional and national policy makers and prevention workers, to help reduce harm from alcohol and drug use among young people. The project aims to disseminate information on high quality interventions in nightlife settings (Intervention database), provide a resource for relevant academic literature (Literature database), and encourage the exchange of knowledge about drugs and alcohol prevention in nightlife settings via a publicly available online platform (<http://hntinfo.eu/>). A core instrument in the dissemination of the gathered knowledge and

experience is a handbook [Healthy Nightlife Handbook, (HNT, 2010), http://www.emcdda.europa.eu/attachements.cfm/att_231070_EN_INT11_Handbook_printversion%20100804_DEF.PDF] that provides models of good practice and a structured method to identify, plan and implement suitable effective interventions and policies in order to reduce drug and alcohol related harm in nightlife settings. The Toolbox also contains contact details of experts who can provide advice and guidance when planning intervention projects.

The specific objective of the study presented here was to monitor and evaluate the Healthy Nightlife Handbook and the databases in practice. Nine organizations (eight Hungarian and one Italian NGOs) were asked to evaluate the handbook and to apply the handbook and the databases in practice while planning a safer nightlife intervention project based on available evidence, good practice and experiences of evaluated interventions (Bellis, Hughes, & Lowey, 2002; Calafat, Juan, & Duch, 2009; Hughes et al., 2011). In the course of process evaluation feedback on the handbook and suggestions for further improvement were collected, while for outcome evaluation the developed project plans were evaluated with the help of independent experts.

The three studies not only introduce the specific projects and present certain phases of interventions, but provide information, data, contingencies and experiences always keeping a practical focus. The results offer the possibility of creating new responses reflecting on trends in a timely manner and keeping in mind the aspects of efficiency, cost-effectiveness and the importance of monitoring and evaluation.

3 DISCUSSION OF RESULTS

3.1 Global Drug Survey

3.1.1 Results

Due to the purposive sampling, more than half of the Hungarian sample go out clubbing on a regular basis, therefore the planned comparison between clubbers and non-clubbers became possible as intended.

In line with the literature telling that recreational drug use and clubbing is not interpretable in terms of ‘deviance’, I did not expect significant differences between the groups concerning sociodemographic variables or indices of mental health and subjective well-being (Calafat et al., 1999; Dorn, 1991; Thornton, 1996). Results showed that indeed clubbers either had the same characteristics as non-clubbers in terms of sociodemographic variable or had even more favorable qualities. The only significant difference was between the ages of the groups, which is also logical knowing that normalization of drug use and less frequent clubbing comes with age and having different social roles (e.g. having children) (Parker, Measham, & Aldridge, 1995). The same can be observed with the variables of mental health and interestingly, clubbers regarding subjective well-being showed significantly better results.

According to the findings, the three drugs with the highest lifetime prevalence values in the sample are legal drugs; alcohol, tobacco and energy drinks. The most popular illegal drugs are cannabis with 61.7%, MDMA (29.1%), magic mushrooms (26.6%), all types of amphetamines (26.0%), Cocaine (23.5%) and LSD (21.6%). Synthetic cannabis is only the 7th most widely tried illegal substance (16.1%). These results are quite in accordance with the estimated prevalence in Europe, however synthetic cannabis use deserves attention (EMCDDA, 2016).

In last year prevalence data a few interesting phenomena can be observed. One is the appearance of benzodiazepines and NPS on the list with 6% and 5% respectively. This category does not comprise synthetic cannabis and refers to such substances that the user does not really know at the time of administration. The risk behavior of taking unknown drugs gives reason to worry and interventions might better focus on this phenomenon.

Also in line with the expectations (Riley, James, Gregory, Dingle, & Cadger, 2001; Ward, Fitch, & Sherlock, 1998), clubbers have significantly higher lifetime, last year and last

month prevalence than non-clubbers in case of nearly all substances. The exceptions are benzodiazepines, last month prevalence of NPS and synthetic cannabis. For the latter two, however, means are higher in the clubber group, but the difference is not statistically significant.

GDS had a detailed section on different harm reduction techniques people might apply when using the most common recreational substances (mainly illicit drugs). These techniques were compared along three different axes, 1, frequency of use, 2, perceived importance and 3, impact on the enjoyment of drug use.

When ranking all the harm reduction strategies in order of importance, alcohol and cannabis are not present in the top 10. Overall most important strategies are: (1) in case of MDMA: “Make sure that you stay well hydrated, (2) „Avoid driving or cycling after (within 24 hours) you have used magic mushrooms/LSD”, and (3) in case of new drugs: „Take a ‘test dose’ by taking a quarter of pill or a fraction of the assumed dose and waiting at least 60-90 minutes before taking a new batch”.

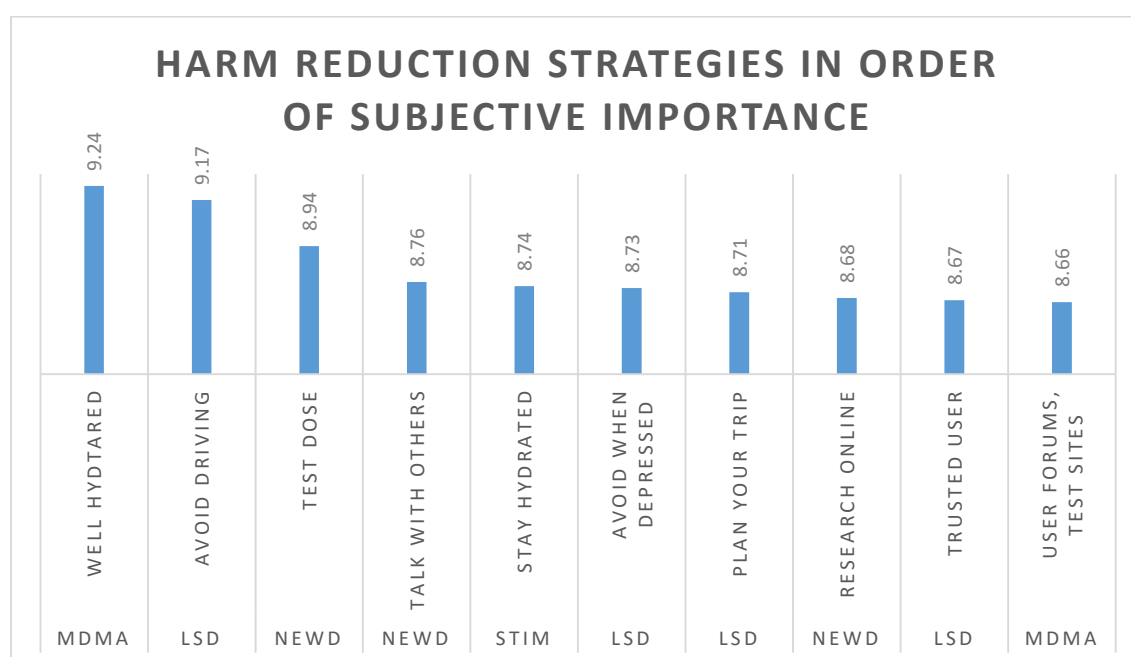


Figure 1 Harm reduction strategies in order of importance

When ranking all harm reduction strategies in order of impact on usage, thus improving enjoyment, only three substances make it to the top 10: LSD, stimulants and cannabis. Overall greatest impact on enjoyment of use are exerted by the following strategies: (1) “Plan your psychedelic session (trip) with LSD/mushrooms in advance”, (2) “Avoid using magic mushrooms/LSD when you are feeling depressed/anxious/physically worn out”, and (3) “Make sure you get your LSD from a reliable and trusted source”.

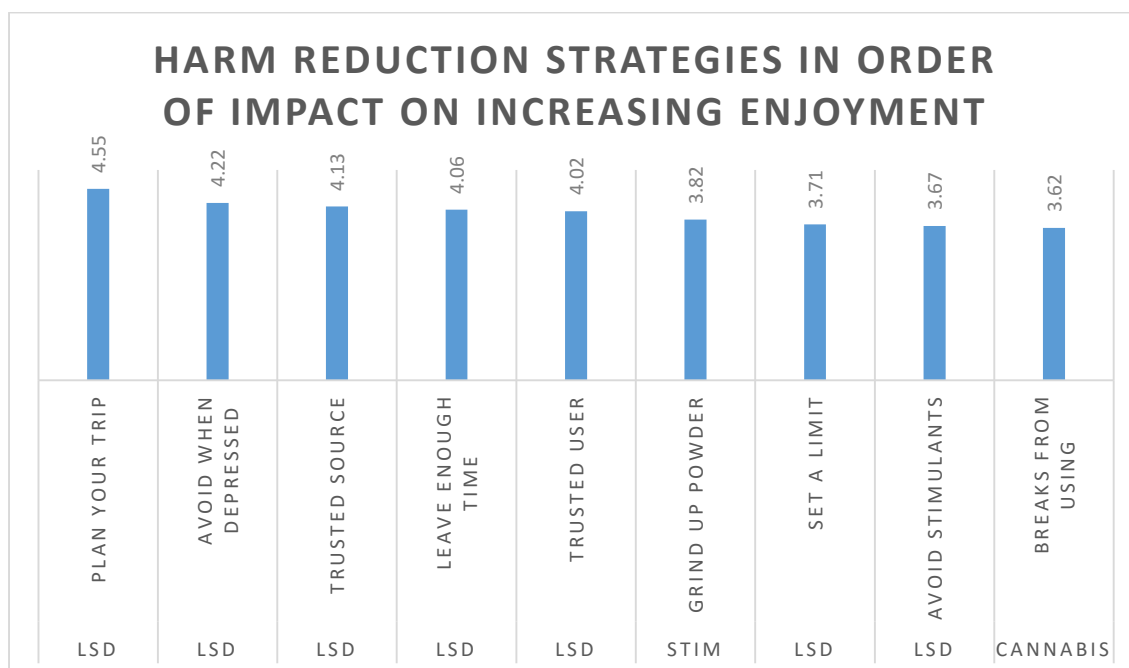


Figure 2 Harm reduction strategies in order of impact on enjoyment

Despite the limitations, the findings of this study fill an important gap in Hungarian drug research and can inform policy, health service development and also those who drink, smoke and/or take drugs.

3.1.2 Limitations

This is not a nationally representative sample, but it does represent one of the largest studies of current recreational drug users ever conducted in Hungary. The study provides a useful snapshot of what drugs are being used by those who go out and those who do not, what are the current trends of drug use and how these drugs and the applied harm reduction techniques are impacting upon people's lives.

3.2 ReDNet

3.2.1 Discussion of results

Only a bit more than one third (35.1%) of the entire sample have ever used any NPS. Based on this information, the sample is divided into two groups; groups were called 'users' and 'non-users' for the purpose of further analysis.

When asked about their knowledge on NPS, users reported good knowledge, while non-users reported having only a poor level of information. This implicates that those who are indeed motivated to know more, can find some kind of information, however the quality

of information is sometimes questionable (CASA, 2008; Forman et al., 2006; Littlejohn et al., 2005).

The most important sources of information on NPS were considered differently by the user and the nonuser group. There was a significant difference between the groups with respect to the most important sources of information they chose. The far most important source, however, for both groups was internet. This was followed by literature and media in users and media and school/workplace in the group of nonusers. Therefore, expectations that young people prefer online sources when looking for information on NPS just as well as on anything else, seems to be met.

Users rated information on effects, possible risks, brief description and route of administration the most important topics they would like to get more information on (in order of importance, first is most important). Nonusers rated risks, effects and brief description the three most important topics (respectively). The difference between the two groups was significant in case of all topics except for outlook and legality of these substances.

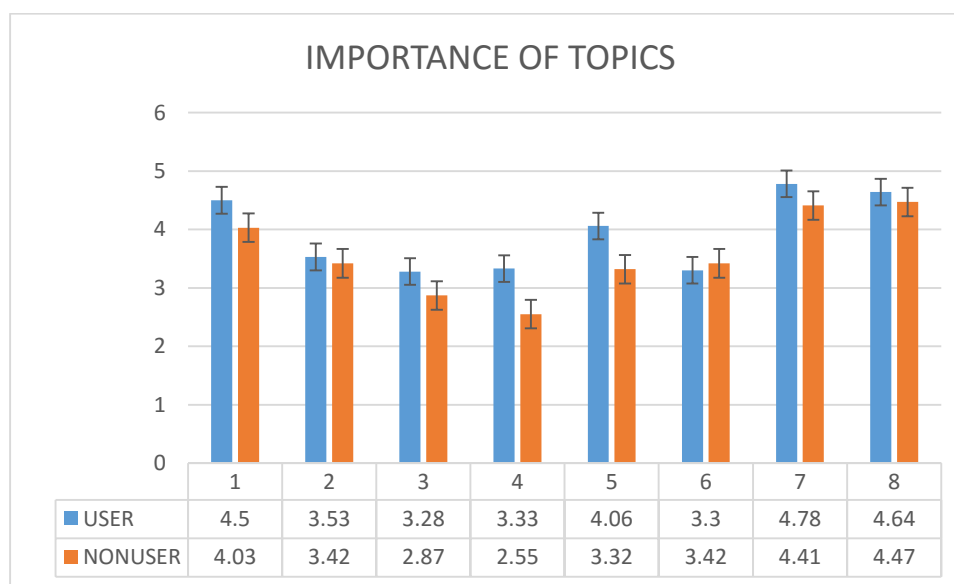


Figure 3 Importance of topics on NPS (1= Brief description of what it is, 2= What does it look like, 3= How is it sold, 4= How much does it cost, 5= How is it taken, 6= Is it legal, 7= What are the effects, 8= What are the risks (e.g., side effects, dependence, overdose) user and nonuser values are mean scores)

In sum, it is important to notice that those who use new drugs need different information, and information is sought on different channels as well. Harm reduction has to plan on these differences, because it appears it is not enough to use universal prevention messages

but needs of different target groups should also be considered (Arthur & Blitz, 2000).

Looking at the data, it becomes clear that 75.29% of the NPS users used only 1-9 days a month, therefore three quarters of the sample can be regarded recreational NPS user. This confirms that the examined sample is indeed our target group.

Results of exploring the sites of purchase yielded that friends and websites seem to be the most popular sites of purchasing new drugs. This aligns with the trends in other parts of Europe and it seems that webshops are actually becoming more popular (Camilleri, Johnston, Brennan, Davis, & Caldicott, 2010; Roussel, Perrin, Herard, Chevance, & Arpino, 2009).

According to the participants who have tried NPS, the quality of their overall experiences with these drugs was outstanding. Respondents reported that their overall experiences with NPS was above average, however 35 persons (6.3%) reported that they have attended hospital/A&E for reasons linked to their use of legal highs.

23 (4.1%) respondents reported to have been in contact with specialist drug treatment services due to NPS use and 37 (6.6%) respondents said to have been in contact with mental health services due to their use of NPS.

These numbers are remarkable and imply that risks of NPS use exist.

Motivations for the preference of NPS were examined with the help of a scale comprised of 15 statements. After the exploratory and confirmatory factor analyses, the following factors were established (Table 1)

Table 1 Motivational items belonging to specific components

Item	Component		
	1	2	3
19a. Other drugs were not easily available	-0.078	-0.049	0.707
19b. Legal (no risk of police arrest)	0.107	0.264	0.710
19c. Easier access (able to buy online)	0.250	0.128	0.772
19e. Value for money	0.348	0.072	0.586
19f. Thinking they are better purity than illicit drugs	0.805	-0.020	0.244
19g. Thinking they are safer than illicit drugs	0.880	0.085	0.095
19h. Gives a better high than illicit drugs	0.551	0.397	0.156
19i. Less likely to get side effects than from illicit drugs	0.817	0.258	0.045
19l. Less easily sniffed by dogs	0.134	0.745	0.212
19m. Less easily detected by urine screens	0.078	0.752	0.223
19n. Good “review” (recommended) from other people	0.277	0.510	0.035
19o. Socially more acceptable	0.223	0.646	-0.093
19p. Media coverage made me curious	-0.071	0.559	0.038

Based on the topics covered by the items of the components, the components were named as follows: ‘Quality’ for the first component, ‘Social conformity’ for the second and ‘Availability’ for the third one.

Age had no impact on the dimensions, but gender did have an effect on the third factor.

Differences between factor scores *across countries* were also tested. The mean factor scores are presented by Figure 4.

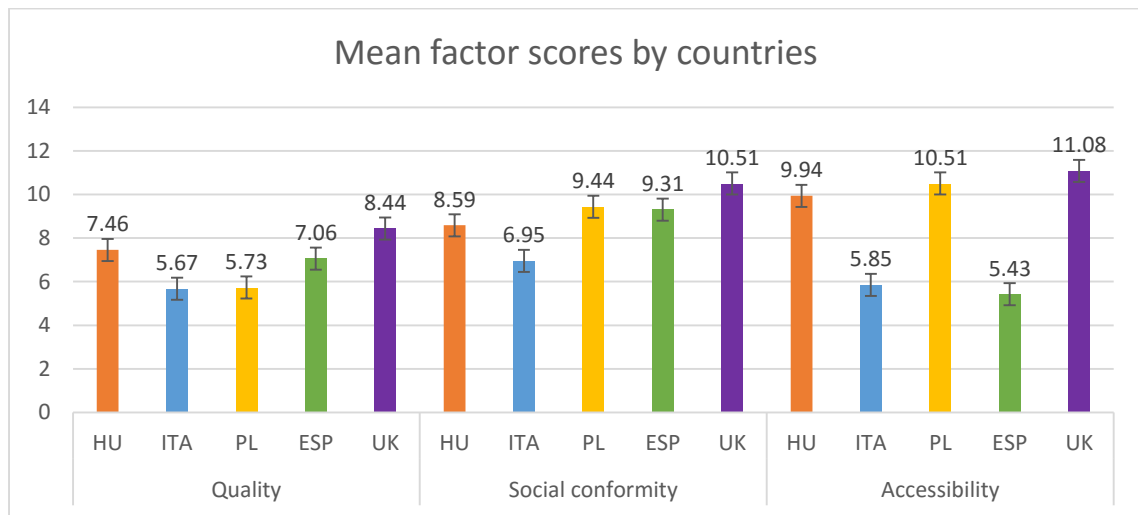


Figure 4 Mean factor scores by countries

Differences between group means were tested with 5 (country) x 3 (motivation) mixed model ANOVA on a 5% error level. Because the sample size of the examined groups varied to a great extent and according to the Levene-test variances differ significantly ($p < 0.001$), the Games-Howell post hoc test was applied. According to the post hoc test, which makes comparisons by pairs, most significant differences were found regarding the availability factor.

Overall, the most and greatest variability across countries were demonstrated by the third factor, therefore caution has to be applied when using the scale in different countries.

Path analysis: motivations and severity of NPS use

The possible contingency between severity of NPS use and specific motivations for choosing NPS over traditional illegal substances was explored by path analysis.

The hypothetic model of the possible effects on the frequency of use and on problematic NPS use is depicted by Figure 5.

We suggest that the actual knowledge on NPS has influence on the frequency of use and problematic use via the different motivations for NPS use.

While frequency of use is predicted only by the *quality* and *availability* factors, problematic use is predicted by all three factors, most of all *availability* which has the strongest effect.

The strongest path from the indirect pathways is knowledge → availability factor → problematic use. This route means that the better knowledge one has on NPS, the more likely they will use for reasons such as value for money or easy access, and this strongly

predicts whether one will eventually have problematic NPS use. This association might stem from the fact that better knowledge on NPS also means that the person is more aware of the risks the unknown or uncertain origin and composition the substance might have (Corazza et al., 2013; Kalapos, 2011; Szily & Bitter, 2013; Ujváry, 2013; UNODC, 2013). This knowledge, however, is overcome by the easy access to the drug and the urge to use. Another possible explanation though is a rather conscious choice of buying a cheap and available drug of which the user already knows whether it can replace or substitute for a traditional but unavailable or wrong quality illicit substance (EMCDDA, 2011; Schneider & Meys, 2011; Sindicich, Cassar, & Burns, 2011) and/or when the availability of MDMA decreased (Brunt, Poortman, Niesink, & van den Brink, 2011; EMCDDA, 2010).

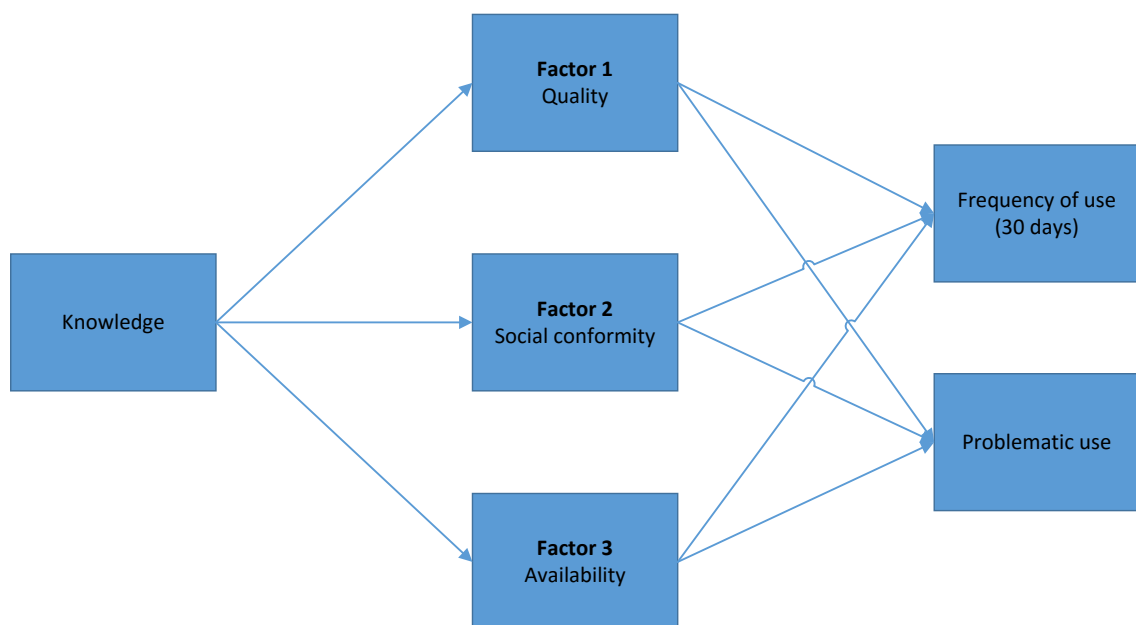


Figure 5 Model of the severity of NPS use

3.2.2 Limitations

Participants for the young sample were recruited online by a purposive convenience sampling method. Sampling aimed to reach adolescents and young adults who are supposed to know more about NPS than other age groups. The recruited sample was unfortunately slightly different in each country, therefore comparison between countries was not possible in all cases. International comparisons are unfortunately hindered by the different sampling criteria and the high variance in gender across countries.

This was a purposive sampling method with significant limitations and the author acknowledges that caution has to be applied when interpreting results.

3.3 Healthy Nightlife Toolbox

Summarizing the results, we can see that Healthy Nightlife Toolbox fills a gap according to the identified needs of the organizations. The majority of the interviewed partners have already conceived the need for such a summarizing material or information forum which collects other organizations' practical experiences regarding nightlife interventions and transfers norms, best practices and successful solutions for the service providers.

In the course of the overall evaluation of the handbook, the assessed four dimensions (*Manageability, Cultural adaptability, Clarity/Unambiguity and Practical usefulness/Feasibility*), except for cultural adaptability, received very favorable ratings. The Handbook, according to the measured criteria, proved to be well structured, clear, practical and easy to handle tool, while at the same time it turned out that adaptability of the handbook is not perfectly independent of the cultural context. Adaptability of specific interventions or types of interventions significantly depends on laws, policies and economic situation of the given country. Because present study involved only two countries, our results cannot be generalized, however, in the course of the further development of the handbook it is undoubtedly reasonable to pay attention to cultural differences.

Organizations highlighted the overall, systematizing perspective of the handbook, the definition of evidence based effective approaches and concrete tips and practical advices as factors that can highly contribute to more effective work of professionals. Besides these, however, need arose for a more detailed description of suggestions regarding the involvement of stakeholders, specifically the presentation of communication strategies which could ease not only the communication with stakeholders of the same interests but stakeholders with counter interests as well. Also there was a specific need for the description of effective communication techniques between professionals and the final target group. Furthermore, partners would also find it useful to see the criteria of effective and ineffective interventions.

Regarding the work phase of problem analysis, handbook proved to be an undoubtedly useful information source and a well applicable tool, while at the same time partners missed mentioning the roles of criminal organizations, information on the needs assessment of the clients and their relatives, the importance of contacting local treatment institutions and the more precise definition of substance abuse from the

relevant chapters.

Results concerning network building show that organizations considered the handbook a practical and adaptable tool in this work phase as well, however, in their opinion, more tips and hints, presentation of best practices and detailed inclusion of the formerly mentioned communication heuristics would greatly enhance usability of the handbook.

In spite of the incomplete intervention database at the time of the pilot study, according to the participants, interventions included in the handbook provide profitable ideas concerning selection of interventions and handbook serves with useful advices for the organizations regarding the implementation phase as well. There is a need, however, for more directive information and several participants missed a more detailed description of the types of interventions listed in Chapter 5 of the handbook. In addition, some partners criticized that many interventions seem to be inadaptably in the given circumstances; cultural barriers concerning the handbook became clear at this point.

Nearly all organizations stated that following the steps suggested by the handbook made work phase of creating a project plan faster and easier and had a positive influence on the quality of the outcome; thus project plan became more organized, clear and its structure more logical. However, based on the feedbacks of the organizations reflecting uncertainty, we felt the need for creating a more detailed scheme of the structure of project plans that was handed to the partners in this final step of project planning. Based on the comments of the participants it seems that this guide contributed to the birth of project plans with more organized structures, therefore this document might as well be a useful amendment of the handbook

As a conclusion it can be stated that there were no systematic differences according to the sizes of the city in the evaluation of the handbook between the organizations, therefore differing interventional needs in connection with these differences did not influence significantly the validity and usability of the handbook. There were differences between judgments of organizations however, in connection with their former experiences in implementing nightlife interventions. Handbook proved to be especially effective for the planning of new, local interventions and for organizations who are newcomers in harm reduction services. Although more experienced organizations are also open towards such a tool and are able to find applicable parts in it, in their case – unsurprisingly – less profit derives from applying the handbook.

At the same time however, in further improvement, and maintenance – especially the refreshment of the content – of the Healthy Nightlife Toolbox involvement of these more experienced organizations might prove to be the most fruitful.

According to this research, the service providers thought that the Healthy Nightlife Toolbox is filling an important gap. It turned out during the program, that service providers believe cultural differences and communication should be given more attention while planning new interventions.

Experience from the evaluation of results suggests that the handbook speeded up and eased the process of project planning and project plans designed with the guidance of the book finally became more organized and logical than interventions planned without its help.

4 CONCLUSIONS

The three studies not only introduce the specific projects and present certain phases of interventions, but provide information, data, contingencies and experiences always keeping a practical focus. Data resulting from the Global Drug Survey on potential substance users fill a large gap in empirical data concerning characteristics of Hungarian recreational drug users, new drug trends and harm reduction techniques that are known and liked by conscious drug users. The results of the ReDNet survey also reveal important data, which is not available from other sources at present, and takes us closer to the understanding of the NPS phenomenon, the reasons for using these drugs and the needs of young people concerning safer use of these possibly high risk substances.

The presented findings offer the possibility of creating new responses reflecting on trends in a timely manner and keeping in mind the aspects of efficiency, cost-effectiveness and the importance of monitoring and evaluation.

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